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EXAMINER	
MIDKIFF, ANASTASIA	

ART UNIT	PAPER NUMBER
2882	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/529,806	TURNER, D. CLARK	
	Examiner	Art Unit	
	Anastasia Midkiff	2882	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *28 August 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-30* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-4 and 6-30* is/are rejected.

7)☒ Claim(s) *5* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *8May & 26Jun 2006*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1, 2, 4, and 6-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent to Skillicorn et al. (USP# 5,077,771) and in view of U.S. Patent Application Publication to Oettinger et al. (PGPUB# 2005/0018817).

With respect to Claims 1, 6, 10, and 19, Skillicorn et al. teach a portable x-ray device, and method for making said device, comprising:

- providing a housing (12) containing an x-ray source (44) and an integrated power system (Column 3, Lines 42-52);
- providing detecting means structurally unattached to the housing (Column 3, Lines 11-13).

Skillicorn et al. do not teach that power system contains an internal power source which can be removed from the housing.

Oettinger et al. teach a portable x-ray device, with a housing consisting of the contiguous encapsulated material, cable, and PCB device (600, 700, 800) wherein an internal power system includes internal power sources comprising a high voltage supply component (118), and a plurality of low voltage supply components capable of operating said device (batteries within 700, Paragraphs 37, 43, and 61), wherein internal power

source (within 700) can be removed from the housing (600, 700, 800, Paragraphs 37 and 61).

It would have been obvious to one of ordinary skill at the time of the invention to incorporate the plurality of low voltage power supplies of Oettinger et al. in the system of Skillicorn et al. to provide a light-weight and compact power source that is field-portable, as taught by Oettinger (Paragraph 6).

With respect to Claim 2, Skillicorn et al. further teaches that detecting means is electrically coupled to the x-ray device (Column 3, Lines 11-13).

With respect to Claim 4, Skillicorn et al. further teach the device comprises integrated display means (30, 42).

With respect to Claims 7, 11, 14, and 17, as they are best understood, Skillicorn et al. teach most of the elements of the claimed invention, but do not teach the power system comprises a plurality of low voltage power supplies with each power supply ranging from about 20kV to about 50 kV.

Oettinger et al. teach a system for analysis with a portable x-ray device (10), wherein the housing (600, 700, 800) contains an integrated power system with power sources (118 and within 700), said power source (within 700) comprising a plurality of low voltage power supplies in the form of batteries (Abstract, Lines 8-10) to provide a light-weight compact structure (Paragraph 6, Lines 7-11), that is capable of generating voltage sufficient to power a 20kV to 50kV source (Paragraph 61). Examiner notes that batteries known to be used in such a power supply are capable of providing a power ranging from about 20 to about 50 kV, and that since it has been held that where the

general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller, 105 USPQ 233 (CCPA 1955).*

It would have been obvious to one of ordinary skill at the time of the invention to incorporate the plurality of low voltage power supplies of Oettinger et al. in the system of Skillicorn et al. to provide a light-weight and compact power source that is field-portable, as taught by Oettinger (Paragraph 6).

With respect to Claims 9, 13, and 16, Skillicorn et al. teaches system for x-ray analysis, containing a portable x-ray digital camera comprising: a housing (12) containing an x-ray source (44), an integrated power system (Column 3, Lines 42-52), and integrated display means (30, 42); and detecting means structurally unattached to the housing (Column 3, Lines 11-13).

With respect to Claims 8, 12, 15, and 18, Skillicorn et al. teach that the x-ray source is shielded with a low-density insulating material containing a high-Z substance (Column 7, Lines 42-44).

With respect to Claim 21, Skillicorn et al. teach a method for analysis comprising: providing a housing (12) containing an x-ray source (44) and an integrated power system (Column 3, Lines 42-52) with detecting means structurally unattached to the housing (Column 3, Lines 11-13), and powering the x-ray source using the integrated supply system (Column 3, Lines 44-48).

With respect to Claims 20 and 22, Skillicorn et al. teach most of the elements of the claimed invention, but do not teach providing the power system with a plurality of

low voltage power supplies with each power supply ranging from about 20 to about 50 kV.

Oettinger et al. teach a system for analysis with a portable x-ray device (10), wherein the housing (600, 700, 800) contains an integrated power system (118), said power system comprising a plurality of low voltage power supplies in the form of batteries (Abstract, Lines 8-10) to provide a light-weight compact structure (Paragraph 6, Lines 7-11). Examiner notes that batteries known to be used in such a power supply are capable of providing a power ranging from about 20 to about 50 kV, and that since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller, 105 USPQ 233 (CCPA 1955).*

It would have been obvious to one of ordinary skill at the time of the invention to incorporate the plurality of low voltage power supplies of Oettinger et al. in the system of Skillicorn et al. to provide a light-weight and compact power source that is field-portable, as taught by Oettinger et al. (Paragraphs 6-7).

Claims 3, 23, and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Skillicorn et al. and Oettinger et al., as for Claim 1 above, and in view of U.S. Patent to Schulze-Ganzlin et al. (USP# 5,514,873).

With respect to Claims 3, 23, and 24, Skillicorn et al., as modified by Oettinger et al., teaches most of the elements of the claimed invention, but does not teach that

detecting means electrically communicates with the x-ray device using wireless technology, or that x-rays impinge in the teeth of a patient.

Schulze-Ganzlin et al. teach a free-standing portable x-ray radiation detector (Abstract), and method for its use, with a wireless transceiver for input and outfeed of electrical signals (2, and Abstract), such signals known to be capable of controlling an x-ray radiation source (Column 1, Lines 18-25), which is compact and reusable (Column 2, Lines 22-31) for use in dental radiography (Column 3, Lines 4-9).

It would be obvious to use the detector of Schulze-Ganzlin et al. in the system of Skillicorn et al. and Oettinger et al., to provide a detecting means which is capable of communicating with the x-ray source, and is suitable for hygienic uses such as dental radiography, as taught by Schulze-Ganzlin (Column 2 Lines 22-31, and Column 3 Lines 4-9).

Claims 25-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Skillicorn et al. and Oettinger et al., as for Claim 1 above, and in view of U.S. Patent to Malcolm et al. (USP# 4,979,198).

With respect to Claims 25-27, Skillicorn et al., as modified by Oettinger et al., teaches most of the elements of the claimed invention, but does not teach a controllable display means integrated into the housing, external to the x-ray device.

Malcolm et al. teaches a portable x-ray device wherein there is a controllable display means (27, Column 5 Lines 59-68, and Column 6 Lines 1-11) directly coupled to the device (Column 6 Lines 6-11, and Figures 1 and 4), integrated into the housing and

external to the device (Column 5, Lines 58-62), to allow direct viewing of image signals received (Column 5 Lines 58-62, and Column 6 Lines 6-11).

It would have been obvious to one of ordinary skill in the art at the time of the invention to use the controllable display means of Malcolm et al. in the device of Skillicorn et al. and Oettinger et al. to allow direct viewing and image control as taught by Malcolm et al. (Column Lines 59-68, and Column 6 Lines 1-11).

With respect to Claims 28 and 30, Skillicorn et al., as modified by Oettinger et al., teaches a portable x-ray device comprising: a housing (12) containing an x-ray source (44); and detecting means structurally unattached to the housing (Column 3, Lines 11-13).

Skillicorn et al. does not teach a controllable display means comprising a portable electronic device.

Malcolm et al. teaches a portable x-ray device wherein there is a portable electronic controllable display means (27, Column 5 Lines 59-68, and Column 6 Lines 1-11) directly coupled to the device (Column 6 Lines 6-11, and Figures 1 and 4), integrated into the housing and external to the device (Column 5, Lines 58-62), to allow direct viewing of image signals received (Column 5 Lines 58-62, and Column 6 Lines 6-11).

It would have been obvious to one of ordinary skill in the art at the time of the invention to use the controllable display means of Malcolm et al. in the device of Skillicorn et al. and Oettinger et al. to allow direct viewing and image control as taught by Malcolm et al. (Column Lines 59-68, and Column 6 Lines 1-11).

With respect to Claim 29, Malcolm et al. further teaches the portable electronic device enhances the image analysis of the x-ray device to produce images suitable for viewing (Column 5 Lines 49-68, and Column 6 Lines 1-11).

Allowable Subject Matter

Claim 5 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

With respect to Claim 5, the best prior art of record teaches many of the elements of the invention as claimed, including: a portable x-ray device, and method for making said device, comprising: providing a housing (12) containing an x-ray source (44) and an integrated power system (Column 3, Lines 42-52); providing detecting means structurally unattached to the housing (Column 3, Lines 11-13); that power system contains an internal power source which can be removed from the housing; and integrated display means.

However, prior art fails to teach or fairly suggest that display means comprises an LCD screen, in the manner required by Claim 5.

Response to Arguments

Applicant's arguments with respect to prior art rejections of claims 1-30 have been considered but are moot in view of the new ground(s) of rejection. However, an issue still remains with respect to the Oettinger reference.

With respect to Oettinger, the Applicant asserts that Oettinger does not teach an internal power source capable of powering the x-ray generator, that the plurality of batteries listed in the art rejection are capable of powering the source, and that a housing is disclosed. The examiner respectfully disagrees.

The housing of Oettinger is referred to as the contiguous encapsulating portions of potted material (600), cable surrounding electrical connection (800), and printed circuit board housing (700), as cited in the above and prior action, and shown in Figure 1A of Oettinger. Within the potted, encapsulated portion is a voltage multiplier with a plurality of low-voltage sources, and within the PCB is a plurality of batteries, capable of powering the source (Paragraph 61 of Oettinger), and removable as standard storage batteries (Paragraphs 37 and 61 of Oettinger), as cited in the above and prior actions.

Further with respect to Oettinger, the Applicant asserts that there is no motivation to combine the teachings of Oettinger with the apparatus of Skillicorn, as the power supply of Oettinger can only produce a voltage of 40kV, maximum (Applicant arguments, Page 12, Line 1). The examiner respectfully disagrees.

Claims 7 and 11 recite a range of "about 20 kV to about 50kV", wherein the 40 kV of Oettinger falls within the required range.

Therefore, the rejections of Claims 1-30 in view of the above cited references are maintained.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anastasia Midkiff whose telephone number is 571-272-5053. The examiner can normally be reached on M-F 7-4.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Glick can be reached on 571-272-2490. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

ASM
11/11/06

EDWARD J. GLICK
SUPERVISORY PATENT EXAMINER